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THE PLANT DISEASE REPORTER

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Issued By

Division of Mycology and Disease Survey

Volume XXII Number 16

September 1, 1938.

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE PLANT DISEASE REPORTER

Issued by

THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Vol. XXII Number 16

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POTATO LATE BLIGHT: OCCURRENCE IN WISCONSIN AND OTHER REPORTS

WISCONSIN: Late blight (Phytophthora infestans) has not been observed in Wisconsin for a number of years--according to reports to the Survey, not since 1931 when it was found only on a few tubers during sorting, and was not seen on the foliage. Its occurrence there this year is reported by R. E. Vaughan as follows (August 30):

"Potato late blight was first located at Madison, Dane County, August 29. It was noted on four farms in Washington County visited today. All late varieties are affected. There is no tuber infection at this time. Vine growth is very abundant. Rains have been frequent during the past two months."

WESTERN NEW YORK: In a report from Wyoming County, T. C. Rawlins states:

"Our situation with respect to blight looks much better because of bright, windy weather. This was very greatly needed after the heavy rain of August 10, that threatened to cause much damage. While blight is still present in nearly all fields it is in very small quantity and is not at present spreading." (Weekly News Letter, August 15).

VIRGINIA--A CORRECTION: Harold T. Cook writes that the sentence concerning rainfall in his report from Virginia in the preceding issue, page 329, should read as follows: "Precipitation at Norfolk was 3.03 inches above normal (nearly double) and occurred on sixteen days."

THE TOMATO DISEASE SITUATION IN LAVACA AND DEWITT COUNTIES OF TEXAS IN 1938

A. L. Harrison

Tomatoes in Lavaca and Dewitt Counties were subjected to a wide variety of climatic conditions during the spring tomato season of 1938. Consequently some of the common tomato pathogens were rather prevalent and in some cases very destructive. The following is a brief account of the tomato diseases occurring during the past growing season.

Early blight (Alternaria solani) was by far the most common and most destructive disease. Losses as high as 75 percent were observed. In the cold frame the organism was seen to be causing a collar rot, a stem canker, and a leaf blight. Later, in the field, losses of 25 to 30 percent resulted in a few cases from the stem canker phase and the plants in many fields were almost defoliated. The actual loss for the territory was between 5 and 10 percent.

Bacterial spot (Bacterium vesicatorium) was observed in several fields where it was causing almost a total loss, because of spotting of the fruit, and in many others where the loss went as high as 50 percent. However, the losses for the area did not exceed 3 to 5 percent.

Core rot (cause undetermined) was responsible for heavy financial losses to some of the shippers of greenwrap tomatoes during the first weeks of the shipping season. During the latter part of April and the early part of May some lots had as high as 20 percent of the fruits affected. Fortunately, the malady was very uncommon after the first of May. The disease is characterized by an internal breakdown of one or more of the locules that cannot be detected from the outside except by a slight brownish discoloration on the stem end. The affected portions first turn light brown, then, as the disease progresses dark brown, and finally the whole interior of the fruit is a rotten mass, not detectable from the outside except at the stem end. The loss for the season was about 2 percent.

Puff rot is probably just another phase of core rot although in this case there were no external symptoms of the disease. It was nearly always associated with badly puffed tomatoes, although in a few cases it was observed in firm tomatoes. The internal symptoms were indistinguishable from those of core rot.

Puff (physiological) was present in every lot of tomatoes this year. Losses of 75 percent were frequent especially towards the close of the season. The average loss for the area was in the neighborhood of 25 to 30 percent.

Tomato wilt (Fusarium [bulbigenum] lycopersici) was observed in a number of fields but in only a few fields was it serious. The planting of the wilt-resistant Marglobe has reduced the losses, which were less than 1 percent.

Soil rot (Phytophthora sp., probably P. terrestris) was serious in the fruits following the rainy period of late April and early May; some fields had 50 percent of the fruits affected. The average loss was about 2 percent.

Sunscald was serious late in the season in fields defoliated by Alternaria solani.

The following diseases were observed at various times during the season but the damage caused in each case was only a trace: southern blight (Sclerotium rolfsii) on both fruits and stems, soil rot (Rhizoctonia solani), blossom-end rot, nematode (Heterodera marioni), leaf mold (Cladosporium fulvum), mosaic, fern leaf, streak, catfaces, bacterial canker (Aplanobacter michiganense), and a soft fruit rot caused by a species of Pythium.

Early in the season many tomatoes were dotted with superficial white to whitish green circular areas which detracted to some extent from the appearance of the fruit. No microscopic organism was found associated with the spotting. It may be the same as the "Ghost Spot" described by Bryan in U. S. D. A. Circular 282. No particular loss was caused by the spotting.

(Tomato Disease Laboratory, Yoakum, Texas, Division of Plant Pathology and Physiology, Texas Agricultural Experiment Station).

ONION DOWNY MILDEW AND OTHER DISEASES OF VEGETABLE CROPS IN OHIO

J. D. Wilson

Onion downy mildew [Peronospora destructor] became very destructive in certain areas in Ohio this year, particularly in the Scioto Marsh. The disease appeared in small patches on the morning of July 29 and by August 4, four or five days later, practically all of the onions in the marsh were badly affected. This is the first time in the experience of most of the long-time growers of onions that the attack has assumed any such proportion; in fact, it was the first appearance of the disease in the experience of many growers. Consequently no control measures had been used.

Bacterial canker [Aplanobacter michiganense] of tomatoes has appeared again this year and is rather severe in isolated fields. One 2-acre planting of staked tomatoes is an entire loss and small areas in other fields have been destroyed. Other diseases of tomatoes, such as Septoria blight [S. lycopersici], bacterial scab [B. vesicatorium], and some of the fruit rots, are very common and are severe in certain fields.

Both early and late blight of celery [Cercospora apii and Septoria spp.] have been found during the past three or four weeks and losses are now becoming severe from the attack of late blight.

Cucumber mosaic is especially severe this year, causing the destruction of whole fields within a period of four to seven days after it is noticed.

Macrosporium and Cercospora blight of carrots [M. carotae, C. apii carotae] are also common and have caused considerable loss in plantings where sprays have not been applied. Spraying of carrots is rapidly becoming more general in northern Ohio.

(August 20. Ohio Agricultural Experiment Station).

OTHER REPORTS ON VEGETABLE DISEASES

POTATO "BLIGHT" IN MAINE: (Telegraphic summary from Weekly Weather and Crop Bulletin, August 30). "Too much rain in Aroostook County, where harvest retarded and considerable potato blight."

BACTERIAL BLIGHTS OF BEAN IN WESTERN NEBRASKA: The small acreage of garden beans grown for canning purposes in western Nebraska show a loss of 60 to 65 percent due to halo blight [Bacterium medicaginis phaseolicola]. This was mostly on Giant Stringless.

Field beans, Great Northern variety, show a trace of halo blight, but common blight [B. phaseoli] is present in most fields. About 60 percent of the acreage was planted with certified seed from Idaho and shows a slight general infection that is causing only a trace of loss. About 36 percent of the acreage was planted with seed only one year removed from certified. These show an average of 20 to 25 percent loss. About 4 percent of the acreage was planted with seed of unknown origin and shows an average of 50 percent loss, chiefly due to common blight. (R. W. Goss, August 20. Nebraska Agricultural Experiment Station).

CELERY BLIGHTS IN WESTERN NEW YORK: All three of the leaf blights --Cercospora [C. apii], Septoria [Septoria spp.], and bacterial [Bacterium apii]--can be found in celery fields in Wayne County, but damage is not reported to be serious as yet. Cercospora is probably most important, being favored by high temperatures. (Lloyd E. Curtis, Weekly News Letter, Aug. 22).

DAMAGE FROM WHEAT SCAB IN SOME MIDDLE WESTERN REGIONS

ILLINOIS: Wheat scab [Gibberella saubinetii] caused moderate losses throughout central Illinois and an important loss to yield in northern Illinois, as observed in DeKalb County. Many more specimens of scab-infested heads were received than at any time during the last 10 years.

Varieties of wheat on the station farm, Urbana, ranged from 5 to 16 percent scabby heads. At the DeKalb experiment farm, actual loss in yield from scab in the Cheyenne variety was easily 30 percent. All other varieties in the test were also severely injured but to a less extent. (Benjamin Koehler, August 18. Illinois Agricultural Experiment Station).

MINNESOTA: In the southwestern part wheat was badly affected by scab and blight. There does not seem to be any scab at Morris or north of that point. (E. R. Ausemus, August 2. Cereal Courier 30: 100. Aug. 10).

WHEAT DISEASES IN THE NORTHWEST

FOOTROT IN IDAHO AND WASHINGTON: The Idaho prairies near Nezperce and Cottonwoods were visited with Mr. Wayne Bever on June 28. Footrot was very spotted but very severe in certain fields. One 800-acre field of hard winter wheat near Nezperce showed 25 to 40 percent loss. The culms were badly tangled, off-color, and mostly rotted, and the heads small. The cercosporella footrot [C. herpotrichoides] was found in a large number of fields where it had not been found in 1934, particularly towards the top of the Cul-de-sac grade and near Craigmont on cut over land which is not often found harboring the footrot. The loss for the area may amount to 60,000 bushels. Discontinuing the growing of Turkey and other bearded varieties, Goldcoin and Triplet would materially reduce the loss in certain fields in this region.

Footrot was also scattered in the Palouse. There was a great deal of lodged grain along the highway between Pullman and Spokane, but most of it was not diseased or showed only some weakening due to Wojnowicia in the lumen. A large area of cercosporella footrot was found west of Spangle towards Cheney. This region extended surprisingly far east and north and bordered a scab rock area in places. (Roderick Sprague, July 17. Cereal Courier 30: 95. July 25).

STRIPE RUST, LEAF RUST, AND STEM RUST IN IDAHO AND WASHINGTON: The most severe stripe rust (Puccinia glumarum) infection in the writer's experience developed this year. Readings were made on 655 different grass species and strains included in the Soil Conservation grass nursery at Pullman, Washington. Many of the more susceptible strains were literally covered with this rust, and in many cases it is doubtful if they will even head. A few new susceptible grass species were added to the list published by Hungerford and Owens in 1923 (Jour. Agr. Res., Vol. 25, No. 9). In both the Pullman, Washington, and Moscow, Idaho experiment station wheat varietal nurseries, stripe rust was especially severe on susceptible varieties. Leaves on the susceptible varieties, such as Jones Fife, Federation, and Forty-fold, were completely killed early in the season. Some of the more susceptible barley varieties in the nursery were also heavily infected.

At Sandpoint, Idaho, leaf rust [Puccinia rubigo-vera tritici] was more prevalent on wheat than either stripe or stem rust. On some of the more susceptible varieties a prevalence of 100 percent was noted; however, it was difficult to estimate the actual damage done by this rust. At Moscow in the bunt nursery, varieties such as Hybrid 128 and Martin showed 100 percent infection.

Stem rust [P. graminis] was first noted this spring four to six weeks earlier than usual. Aecia on barberry were prevalent for the first

time in many years in the vicinity of Moscow. Early uredial infection on wheat was observed and the spread was rapid for a time; however, the weather conditions of the past two weeks have not been conducive for the best development of the fungus. (W. M. Bever, July 13. Cereal Courier 30: 93. July 25).

RUSTS AND OTHER DISEASES IN WASHINGTON: The winter wheat crop in the State as a whole is better than average. This is the result of good seeding conditions, a relatively mild winter with adequate snow covering during the cold periods, and a favorable growing season. The protein content of the wheat is below average, however.

The spring wheat crop in the Big Bend and other dry areas looks well. The yields probably will be above average. In eastern Whitman and Spokane Counties the spring wheat will not be ripe for 8 to 12 days. The yields in most cases are expected to be from fair to good if favorable weather continues and no further spread of stem rust occurs.

This season has been fairly favorable for the rusts. Stripe rust appeared early in the spring and no doubt did some damage, particularly to the Forty-fold and Golden varieties. However, these varieties have produced a good crop in spite of infections as high as 50 to 60 percent.

Leaf rust also appeared early and reached 75 to 90 percent severity in many fields of winter and spring grain in eastern Washington.

Stem rust appeared early but did not spread very extensively until most of the winter wheat was in the medium to late dough stages. The greatest damage to winter wheat occurred in the vicinity of Colfax, where wheat on the flats and northerly slopes of a number of fields was very badly damaged. However, with a few exceptions, these heavily damaged areas are worth harvesting.

A few fields of spring-sown Federation wheat in eastern Whitman and Spokane Counties are so badly damaged by leaf and stem rusts that a prospect for a yield of more than 15 bushels is unlikely. The majority of spring wheat fields that are still immature are expected to yield 25 to 35 bushels in spite of considerable rust damage in many of the flats.

An estimate of the loss due to stem rust in the two above mentioned counties that are expected to produce 15,000,000 to 17,000,000 bushels is 200,000 to 300,000 bushels. No attempt was made to estimate the losses due to the leaf and stripe rusts nor to powdery mildew [Erysiphe graminis], all of which were prevalent to a greater extent than in the seven previous years.

Bunt [Tilletia sp.] in the winter wheat in the Palouse section is again light. None of the many fields examined had over 1 percent of bunted heads. In the Walla Walla area fall-sown Federation had from 2 to 6 percent of bunted heads in nearly every field examined. (O. A. Vogel, Aug. 5. Cereal Courier 30: 109. Aug. 10).

RICE DISEASES IN TEXAS AND ARKANSAS

E. C. Tullis

Cercospora oryzae leaf spot was found July 14 on rice plants in the nursery at the Rice Branch Experiment Station, Stuttgart, Arkansas, and on plants in commercial fields in the vicinity. It was evidently just beginning to show, as only a few infected plants were found in commercial fields. So far none has been found on rice in Texas.

Rice growing on new land in the vicinity of Kevill, Arkansas, between Clavendon and Brinkley, was found to be rather severely infested with Piricularia oryzae. Leaf spotting was found but no crown injury was noted. Digitaria sanguinalis with a severe Piricularia infestation was found on border levees of affected fields. Affected plants of this grass also were found growing in and along the levees of fields. Infection had no doubt spread from this grass to the rice.

Piricularia leaf spot also was found by Messrs. Beachell and Adair on July 19 in a field south of Nome, Texas. Entyloma leaf spot [E. oryzae] was found in Arkansas during the week of July 11-16, and in Texas the week following.

Helminthosporium leaf spot [H. oryzae] is generally present in the rice growing areas around Stuttgart and Beaumont. The spotting of plants is more severe in Texas than in Arkansas. A few rather severely spotted fields have been reported but for the most part only a trace is found in commercial plantings. Abundant spotting is found on nearly all the rice at Texas Substation No. 4, Beaumont, insuring satisfactory condition for uniform infection not only in the leaf spot nursery, but in the nursery as a whole. (July 25. Division of Cereal Crops and Diseases. Cereal Courier 30: 101. Aug. 10).

OTHER REPORTS ON DISEASES OF CEREALS

WHEAT DISEASES IN UTAH: Much of the winter wheat has been harvested and high yields are reported in most cases. Little or no disease injury has been noted in most of the fields. Spring-seeded small grains, on the contrary, have a heavy stem rust infection in most fields examined.

Mildew is also prevalent. Only occasional fields have shown serious bunt injury but the growing of resistant varieties is quite general. (R. W. Woodward, August 2. Cereal Courier 30: 110. Aug. 10).

DISEASES OF SMALL GRAINS IN ARIZONA: In general, it may be said that climatic conditions in southern Arizona seldom vary greatly from normal. The high precipitation which occurred during the winter and in the early spring months in California and Utah did not occur in southern Arizona. The local rainfall during that period was below normal. The temperature during the growing period for small grains was generally slightly above normal. This caused a little earlier heading but did not seem to affect the plant height or grain yield. There were no diseases other than those usually occurring, that is, smut and stem rust on occasional fields of wheat near Yuma in northern Arizona. (A. T. Bartel, August 1. Cereal Courier 30: 110. Aug. 10).

BACTERIAL WILT OF CORN IN ILLINOIS: Bacterial wilt [Aplanobacter stewarti] was observed to be causing significant loss in some gardens in early sweet corn at Urbana and in the East St. Louis area. Some inbred lines of field corn were severely injured by wilt at Pana, Illinois -- some plants being killed and many others severely weakened. (Benjamin Koehler, August 18. Illinois Agricultural Experiment Station).

STEM GALLS OF FORSYTHIA AND CORALBERRY PRODUCED BY PHOMOPSIS

Nellie A. Brown

In the late spring of 1938, stem galls of unknown origin on Forsythia suspensa Vahl. were collected in Lexington, Kentucky, by R. J. Haskell. The galls were nodular outgrowths along the stem, 1/4 inch to 1 inch in diameter. Cavities in many of the nodules suggested emergence of insect larvae. However, the Bureau of Entomology and Plant Quarantine reported that the galls were not of insect origin so the work of isolating a pathogen was undertaken.

No crown-gall colonies appeared on plates from live gall tissue. A fungus was isolated later in tube cultures in which both the a and b types of Phomopsis spores were produced.

In the early summer of 1938, galls on the coralberry bush, Symphoricarpos orbiculatus Moench. were brought to us for identification and study from Takoma Park, Maryland. The resemblance to those on forsythia was striking. The galls on the coralberry stems, however, were more numerous; some had girdled the stems, and parts of the plant were dead or dying. Phomopsis was isolated from the coralberry galls also and in cultures both the a and b types of spore were produced in abundance.

Since neither of these two host plants was available stems of privet and viburnum growing out-of-doors were used to test the pathogenicity of the two Phomopsis isolations. Four weeks after inoculation, galls were produced by both strains of Phomopsis on both privet and viburnum. Although Phomopsis galls are usually slow growing, in this short time one of the coralberry galls on viburnum was more than one fourth inch in diameter.

(Division of Fruit and Vegetable Crops and Diseases).

DUTCH ELM DISEASE

(From reports of the Bureau of Entomology and Plant Quarantine for the weeks ending August 6, 13, 20, 27).

Bucks County is the second county in Pennsylvania to be added to the area in which Dutch elm disease is known to occur, by the confirmation of a tree in upper Makefield Township, about two miles north of Yardley and a quarter of a mile west of the Delaware River. Another tree was found later in the same township. Two more trees were confirmed in upper Mount Bethel Township in Northampton County where the disease was first discovered in Pennsylvania as reported in the preceding issue (page 306).

Trees confirmed during the period are as follows:

Connecticut	133
New Jersey	5,594
New York	302
Pennsylvania	4
Indianapolis	9
Total	6,042

SOME DISEASES REPORTED FROM NEW JERSEY

In the August issue of "Nursery Disease Notes" issued by the Department of Plant Pathology of the New Jersey Agricultural Experiment Station, P. P. Pirone reports the following diseases:

Leaf Blight of Hawthorns Caused by Entomosporium thuemenii (Cke.) Sacc.: "Many inquiries about the cause of a leaf blight and defoliation of English hawthorn, Crataegus oxycantha L., have been received during the past month. From the material submitted to this laboratory and from personal visits in various localities, it appears that the disease is

generally distributed throughout New Jersey. Moreover, the disease was severe enough in most instances to cause complete defoliation of affected trees by the first of August....

"....Hawthorn leaf blight is most severe during seasons of excessive rainfall. The past season has been ideal for infection and spread of the disease. In some sections of New Jersey rain fell on 18 of the 30 days in June.

"Apparently a wide range of susceptibility exists among the various species of Crataegus. In a mixed planting, the English hawthorns were completely defoliated by the first week in August, whereas Cockspur thorns (C. crus-galli L.) and Washington thorns (C. phaenopyrum Med.), growing nearby, showed few spots on the foliage and no defoliation."

The Pink Patch Disease of Turf Caused by Corticium fuciforme:
"Pink patch....was observed for the first time in New Jersey during the past summer. The disease differs from dollar spot or brown patch in that a distinct pinkish color is visible even at a distance, and it is caused by a different fungus. The grass is matted together in spots up to the size of a hat. The pinkish aspect is produced by tufts of fungous growth of the same color on the affected leaf blades.

"Pink patch was more prevalent on the hard fescues in the rough, and on the finer fescues of the fairways. The blue grasses appeared to be unaffected.

"....The fungus is capable of growing at temperatures ranging from 45 to 84 degrees Fahrenheit and makes optimum growth at 62 to 66 degrees F. It makes best growth during the periods of excessively wet weather. Both of these environmental factors were present during the month of June and the early part of July, at which time the disease was most prevalent in New Jersey."

ADDITIONS TO THE FUNGOUS FLORA OF THE PEAVY ARBORETUM

G. R. Hoerner

Two additional collections have been brought to my attention since the original list appeared in the Reporter (The fungous flora of the Peavy Arboretum. P.D.R. 22: 264-267. July 15, 1938). These are:

Puccinia rubigo-vera (D.C.) Winter II, on leaves of Elymus glaucus Buckl. 1-21-36. R. Sprague. Oregon State College Herbarium

No. 10,416. N.B. spores parasitized by an unidentified fusarium-like fungus.

Septoria elymi Ell. and Ev. on leaves of Elymus glaucus Buckl. 1-21-36. R. Sprague. Oregon State College Herbarium No. 10,411.

(Division of Drug and Related Plants).